

Students' Hand-Washing Behaviour Based On Behavioral System Models as An Effort of Covid-19 Prevention

Perilaku Cuci Tangan Pelajar Berbasis Model System Perilaku Dalam Upaya Pencegahan Covid-19

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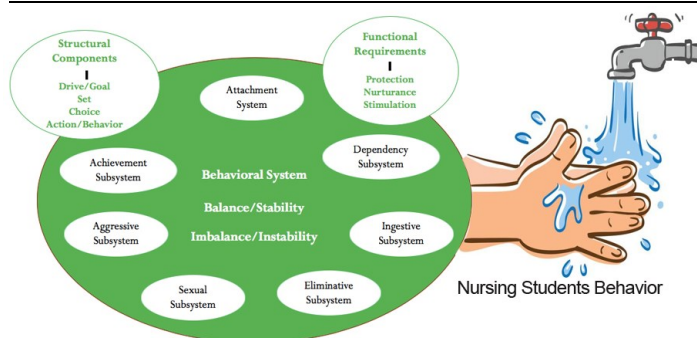
ABSTRACT

The most effective prevention of the spread of Covid-19 is to break the chain of transmission associated with the modes of transmission of Covid-19 by complying with health protocols. This study aimed to determine the handwashing behavior of nursing students based on Dorothy E. Johnson's theory as an effort to prevent Covid-19. The type of research was quantitative research with a descriptive method. The number of samples was 154 students using a proportionate stratified random sampling technique. The results showed that hand washing behavior in nursing students was in a good category as many as 62 respondents (40.3%), while the application of hand washing in the poor category was 32 respondents (20.8%). Based on the results of research with the application of Dorothy E Johnson's behavioral theory system, it is known that most students matched individual behavior with the demands and expectations that existed in society with a good category, the ability to adapt to various changes in body functions in the moderate category. Likewise, being productive and valuable for themselves and others in the moderate category, and the ability to provide solutions to other health problems was in the sufficient category. The majority of hand washing behavior in nursing students was in a good category, where the match between individual behavior and the demands and expectations that existed in society was in a good category as noticeable efforts to prevent Covid-19.

ABSTRAK

Pencegahan penyebaran Covid-19 yang paling efektif adalah dengan memutus rantai penularan yang dikaitkan dengan cara-cara penularan Covid-19 dengan mematuhi protokol kesehatan. Penelitian ini bertujuan untuk mengetahui perilaku cuci tangan mahasiswa berbasis teori Dorothy E Jhonson dalam upaya pencegahan Covid-19. Jenis penelitian yaitu penelitian kuantitatif dengan metode deskriptif, jumlah sampel sebanyak 154 mahasiswa dengan menggunakan teknik proportionate stratified random sampling. Hasil penelitian menunjukkan perilaku cuci tangan pada mahasiswa keperawatan berada pada kategori baik sebanyak 62 responden (40,3%), sedangkan penerapan cuci tangan dengan kategori kurang sebanyak 32 responden (20,8%). Berdasarkan hasil penelitian dengan penerapan sistem teori perilaku Dorothy E. Jhonson diketahui sebagian besar mahasiswa sesuai antara tingkah laku individu dengan tuntutan dan harapan yang ada di masyarakat dengan kategori baik, kemampuan melakukan adaptasi pada berbagai perubahan fungsi tubuhnya pada kategori cukup, tetap produktif serta bermanfaat pada dirinya dan orang lain pada kategori cukup dan kemampuan memberikan solusi bagi masalah kesehatan lainnya berada pada kategori cukup. Penelitian ini menunjukkan perilaku cuci tangan pada mahasiswa dalam kategori baik dan sesuai dengan harapan dalam upaya pencegahan Covid-19.

GRAPHICAL ABSTRACT



Keyword

covid-19 in students
covid-19 prevention
dorothy theory
handwashing behavior
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INTRODUCTION

The world is currently surprised due to a very concerning disease, namely coronavirus Disease 2019 (popularly known as Covid-19). Almost every country in the world has experienced such an increasing trend in Covid-19 cases affecting various sectors, not excluding Indonesia (Chakraborty & Maity, 2020). According to the World Health Organization, Covid-19 is a new type of virus that was discovered in 2019 and has never been known or identified to attack humans before because the Coronavirus spreads quickly. WHO declared it a pandemic in early March 2020. According to the WHO data from Unit Tasks for Handling Covid-19, on February 24, 2021, the positive number of Covid-19 cases in Indonesia continues to rise to 1,334,634 cases. In response to the rising number of Covid-19 cases, governments in a number of countries have imposed social restrictions to stem the tide (Adrizain et al., 2021).

The Enforcement of Tightening Community Activities (PPKM) is implemented by filtering outside people who want to enter the region with the goal of suppressing the increase in Covid-19 cases (Pujaningsih et al., 2020). Furthermore, healthy behavior is required to reduce the rate of Covid-19 transmission. Health behavior is the act of keeping one's body healthy in order to avoid disease attacks. The most effective way to prevent the spread of Covid-19 is to follow health protocols and break the chain of transmission associated with the modes of transmission of Covid-19. Based on this, Covid-19 prevention is centered on preven-

tive behavior (Ayouni et al., 2021).

To reduce the spread of Covid-19, students who serve as Agents of Change must change their behavior by advocating for changes that improve people's lives (Alam & Parvin, 2021). As change agents, students must demonstrate a shift toward better social conditions, such as nursing students who are health students; they must understand and be aware of healthy behavior in washing their hands as a preventive measure against Covid-19 because nursing students will become role models in society, and is expected to be able to provide solutions in accordance with its role as a change agent (Rochanah, 2020). Dorothy's behavioral system model was used. Johnson, who utilizes a behavioral systems approach, has four goals to achieve aimed at individuals, namely the suitability of individual behavior to societal demands and expectations, the ability to adapt to various changes in body functions, remain productive and beneficial to himself and others, and the ability to provide solutions to other health problems (Risnah & Irwan, 2021). During this pandemic, people are expected to be able to properly carry out handwashing behavior in order to achieve the behavioral system's goals.

Preliminary research held by the researcher using interviews with students was conducted online using social media related to hand washing behavior during the Covid-19 pandemic. It revealed that most students rarely followed the six recommended hand washing steps, washing their hands for less than the recommended duration. Meanwhile, some students admitted that they

rarely wash their hands at critical times, such as when touching their faces, visiting public places, or receiving goods from outside.

Several previous studies conducted during epidemics have found that nursing students were at an increased risk of disease transmission (Bai et al., 2021; Fu et al., 2021; Zukhra et al., 2021). Nursing students have previously been found to be more anxious about contracting a disease than students from other health professions (Savitsky et al., 2020). This is likely to be exacerbated by the negative stigma in society as a result of the increase in deaths caused by COVID-19 (Lewnard & Lo, 2020), having an impact on the achievement of the nursing education curriculum (Hayter & Jackson, 2020). Anxiety has a negative impact on quality of life, educational performance, and clinical practice (Chernomas & Shapiro, 2013). Several studies have been conducted to investigate nursing students' knowledge of COVID-19 transmission prevention (Pan, 2020; Savitsky et al., 2020; Tang et al., 2020; de Tantilillo & Christopher, 2020). To the best of the author's knowledge, this is the first study to assess students' knowledge of implementing health protocols in the midst of a pandemic based on Dorothy E Johnson's theory. The goal of this study was to discover nursing students' hand washing habits based on Dorothy E Johnson's theory in order to prevent Covid-19.

METHODS

This study was undertaken using quantitative research with a descriptive

method, specifically looking at the hand washing behavior of Nursing students at UIN Alauddin Makassar in an attempt to prevent Covid-19, by using Dorothy E Jhonson's behavioral systems theory approach. This study was carried out at the Faculty of Medicine and Health Sciences, Department of Nursing, UIN Alauddin Makassar, from August 4 to 18th, 2021. The participants in this study were all current students at UIN Alauddin Makassar's Department of Nursing. In this study, a probability sampling technique with proportionate stratified random sampling was used. Additionally, a sampling technique with different populations and taking the same sample from each layer in the entire population and meeting the inclusion criteria were determined by the researchers. This included nursing students at UIN Alauddin Makassar, their willingness to be respondents, and their willingness to fill out a questionnaire (online) on the google form. While the inclusion criteria were respondents refusing to participate in the study, such as not responding to researcher chats or not completely filling out the research instrument, there were circumstances that interfered with the research's implementation.

In this study, data were collected using a questionnaire to see a description of nursing students' hand washing behavior in an effort to prevent COVID-19. The researcher used a questionnaire from several studies that had been modified and adapted from Dorothy E Johnson's Behavioral systems theory in the form of a google form to collect data consisting of 22 statements us-

Table 1
The Respondent's Characteristic

Variables		Frequency	Percentage (%)
Sex			
Male		16	10,4%
Women		138	89,6%
Age			
Teenagers (15-20 years old)		76	49,4%
Adults (21-30 years old)		78	50,6%
Generation			
2017		41	26,6%
2018		38	24,7%
2019		40	20,6%
2020		35	22,7%
Total		154	100%

ing a Likert scale with answers of always, often, sometimes, and sometimes and never.

Furthermore, it was executed during the data collection stage. After the data had been collected, data editing was performed with the goal of checking the correctness of each questionnaire sheet that had been filled out. In addition, the data were grouped according to the established criteria. After all of the data had been collected, they were coded in Microsoft Excel to make data management easier by coding the questions that had been answered. The data were entered into a predetermined table so that researchers could easily analyze the existing data after coding them in accordance with the research objectives. In this study, one method of data analysis was used, namely univariate analysis to see the description of handwashing behavior in nursing students in an effort to prevent Covid-19 with the Dorothy E Johnson behavioral theory system approach based on the respondents' age, gender, and generation.

RESULTS

According to the data in [table 1](#) on the characteristics of the respondents, the ma-

jority of respondents (138 people) were female (89.6 percent), while male respondents were 16 people (10.4 percent). The distribution of respondents based on age was the most dominant in this study, with early adulthood accounting for as many as 78 (50.6 percent) of the total number of respondents, compared to late adolescence comprising as many as 76 (49.4 percent). Respondent distribution based on the 2017 class was 41 people (26.6 percent), the 2018 class of 38 people (24.7 percent), the 2019 class of 40 people (26.0 percent), and the 2020 class of 35 people (22.7 percent).

[Table 2](#) showed that the majority of respondents were in accordance with the behavior of individuals with the demands and expectations that exist in society, with a good category in hand washing behavior of 62.3 percent or 96 people, based on the behavioral theory questionnaire Dorothy E Johnson. The majority of respondents (72.7 percent or 112 people) were quite adaptable to various body functions. The majority of respondents (72.7 percent or 112 people) were quite productive and beneficial to themselves and others. And the majority of respondents (66.2 percent or 102 people)

Table 2
Hand-washing Behavior Based on Dorothy E Johnson's Behavioral Theory

Variables of Research	n	%
Individual action that is in accordance with societal demands and expectations		
Good	96	62,3
Fair	48	31,2
Less	10	6,5
Ability to adapt to various changes in body functions		
Good	30	19,5
Fair	112	72,7
Less	12	7,8
Maintain yourself and others productive and valuable.		
Good	23	14,9
Fair	112	72,7
Less	19	12,3
Possibility of finding solutions to other health issues		
Good	26	16,9
Fair	102	66,2
Less	26	16,9

were quite capable of providing solutions for other health problems.

According to [table 3](#), nursing students' hand washing behavior applied more in the good category with a percentage of 40.3 percent with a total of 62 respondents, those in the moderate category with a percentage of 39.0 percent with a total of 60 respondents, and those in the less category with a percentage of 20.8 percent with 32 respondents.

DISCUSSION

Regarding the gender of the respondents, the findings suggested that the majority of respondents were females. In general, women have a better memory than men when it comes to logical thinking, according to [Irvine et al. \(2012\)](#). This study also demonstrates that there are such differences in hand washing behavior between the sexes, with women being better at implementing hand washing behavior. This study then supports the findings of [Suen et al. \(2019\)](#), who discovered that most women have

clean living habits, whereas men are less accustomed to clean living habits. However, these variables are not entirely responsible for the disparity. As long as one has the desire, the male gender can also increase hand washing behavior.

Respondents in their early adulthood are the most dominant in terms of age. This is consistent with [McPhee et al. \(2016\)](#) belief that as a person's age increases, physical and psychological (mental) aspects change. Age determines how much or how little personal experience a person has. Personal experience, as well as the influence of emotional factors, influence attitudes and behavior ([Cheng & Monroe, 2012](#)). This is consistent with the research ([Lumbantoruan & Hutapea, 2021](#)), which shows that final-year students have a high level of knowledge and handwashing behavior. Several previous studies found that the majority of final students were well-versed in prevention efforts. Final semester students have understanding and awareness in learning about knowledge, attitudes, and

Table 3*The Frequency Distribution of Hand-Washing Behavior Categories Given to Nursing Students*

Behavior Category	Frequency	Percentage %
Good	62	40,3%
Fair	60	39,0%
Less	32	20,8%
Total	154	100%

behavior, which is in line with the current pandemic situation (Syarif, 2019).

However, the study results indicate that the class of 2020 continues to engage in ineffective hand washing behaviors. The level of education of a person can influence their perspective on the information they receive, so the higher the level of education, the easier it is to receive information. A high level of education makes it easier to learn about hygiene and the importance of hand washing. It can be seen that there is a lack of socialization among the department to nursing students about ways to prevent the spread of disease, one of which is washing hands properly and correctly.

According to the findings of this study, the majority of nursing students were well-behaved. The findings of this study are consistent with research of Yulianthi (2021), which states that most students have good hand washing behavior, where good hand washing behavior can prevent transmission of Covid-19 with the application of hand washing at the recommended frequency and critical times for hand washing. Washing hands with soap before and after doing an activity is one of the clean and healthy living habits.

Individuals want to achieve four goals, according to Dorothy E. Johnson, namely the suitability of individual behavior

to societal demands and expectations, the ability to adapt to various changes in body functions, remain productive and beneficial to themselves and others, and the ability to provide solutions for other health problems (Risnah & Irwan, 2021).

According to the study's findings, element 1 revealed that the suitability between individual behavior and the demands and expectations that existed in the community demonstrated that the majority of the application of hand washing behavior was in a good category, as evidenced by the statement item with the highest score regarding the behavior of washing hands with liquid soap or antiseptic, indicating that many students were able to carry out this behavior. This study supports the findings of Syakurah and Moudy (2020), who discovered that the most common form of prevention is hand washing with soap. This is done because hands are frequently agents that spread germs and pathogens from one person to another.

According to the findings of the research on element 2 of the ability to adapt to various changes in body functions, the majority of respondents fall into the sufficient category. The statement items with the highest scores regarding the behavior of washing hands after visiting public places demonstrate this. As a result, many students

are well aware of the importance of washing their hands after visiting public places. It can be seen that the ability to adapt to changes in body functions is still adequate for adapting to the application of preventive behavior. Adaptation theory, according to Syster Calista Roy, reveals that a person's adaptive response or behavior is determined by the stimulus, and the level or ability of a person's adaptation is determined by input, control, and output (Risnah & Irwan, 2021). As a result, with the current pandemic situation, adaptation to the environment must be adjusted at the level of disease prevention.

The findings of the element three research remain productive and beneficial to themselves and others, indicating that the majority of respondents fall into the sufficient category. This is demonstrated by the statement item with the highest score regarding the behavior of providing antiseptics to people in need. This demonstrates that there is still a lot of reasonably good behavior in students who want to help others by giving antiseptics to their closest people in order to prevent the spread of the Covid-19 virus. Filipe et al. (2021) demonstrated that using a hand sanitizer containing anti-bacterial substances has an effect on killing germs on the hands. This means that using hand sanitizer as an intermediary to clean hands is effective. This means that using hand sanitizers to clean hands as an intermediary source of infectious diseases is effective.

According to the findings of the research on element 4 of the ability to provide solutions to other health problems, the

majority of respondents fall into the sufficient category. The statement items with the highest scores regarding the behavior of providing guidance to families and others to avoid disease demonstrate this. This demonstrates that there are still many students who constantly remind others to wash their hands in order to avoid disease. Hand washing is highly recommended by Jess & Dozier (2020) because it cleans and prevents the spread of germs. Reminding others to wash their hands to avoid disease is the first step in raising awareness of the importance of always practicing preventive behavior during a pandemic to avoid being infected by viruses and bacteria.

CONCLUSIONS

This study illustrated how Dorothy E Johnson's behavioral theory connects four goals to be reached in implementing health protocols during the Covid-19 pandemic. The application of hand washing behavior to nursing students demonstrates the behavior of washing hands with soap, but other behaviors, such as not drying hands with new towels or tissues after washing hands, are still lacking. Nursing students are in agreement with individual behavior with the needs and expectations that exist in society, as evidenced by the majority of individuals achieving four of the four goals. As a result, the effort to adopt a good hand-washing habit qualifies.

The study's main advantage was that it was conducted at a moment of social restriction as a result of the spread of Covid-19 in Indonesia, as well as presenting students' perceptions in real-time, decreasing

memory bias while answering questions. Second, students were assessed at the end of each semester to eliminate age and study status from consideration in this study. The researchers used significant process methodologies to collect data and generate questions using verified instruments. The research still has several flaws that need to be addressed by additional researchers, such as the fact that the samples utilized in this study were limited to nursing students, implying that the results gained would differ if conducted on students outside of health institutions. In addition, in order to acquire representative results in the field, the number of respondents from various regions had to be increased. The researchers believed that while collecting data through social media, an appraisal that was less valid than reality could influence the results. Other researchers can add a number of question items in the form of factors that influence hand washing behavior.

In order to increase motivation to adapt to the new normal, educational institutions should increase the means of supporting the implementation of clean living behaviors in the surrounding environment. This is especially important in the context of the COVID-19 pandemic. There is also a need for intensive socialization at all levels of society about the importance of implementing clean living behaviors, including diligent cleaning.

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